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Biochemistry - " chem of living systems

Analytical - Identifying & synthesizing comp's and analyzing their prop's

Theoretical - use math & computer models to understand chemical behavior



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and has mass

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Matter - anything that occupies space (volume)  
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Law of Conservation of Matter -

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changes it undergoes

Matter - anything that occupies space (volume)  
and has mass (amount)

Law of Conservation of Matter - matter cannot be created  
nor destroyed, by ordinary means

Energy - the ability to cause  
change or do work

Energy - the ability to cause  
change or do work

Potential E

Kinetic E

Energy - the ability to cause  
change or do work

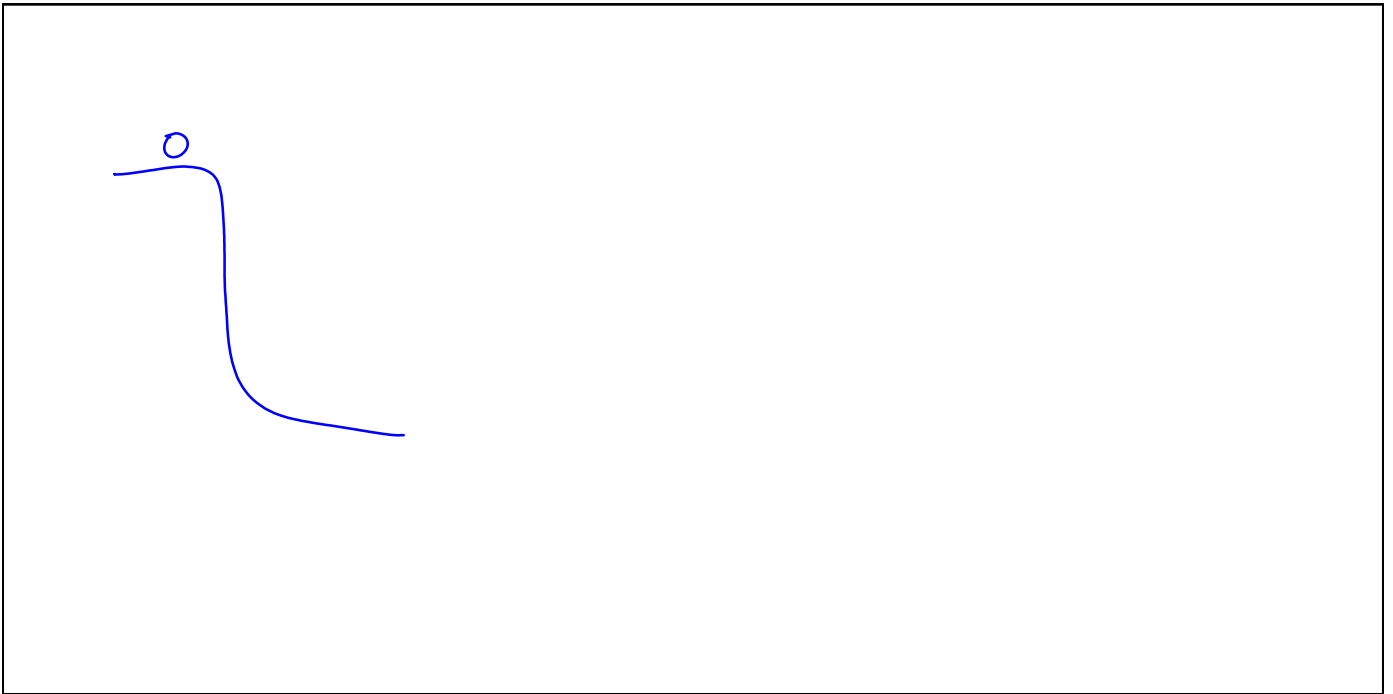
Potential E - stored E

Kinetic E - E in motion

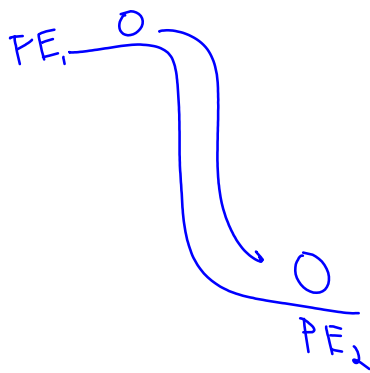
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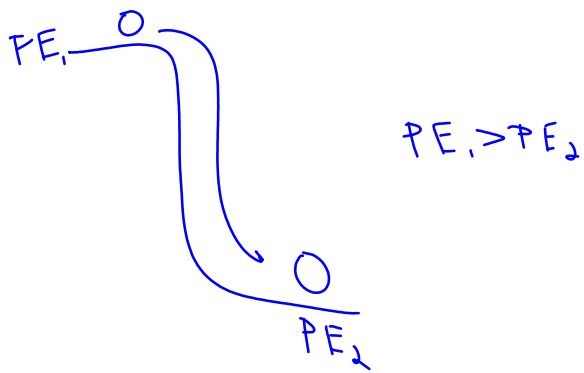
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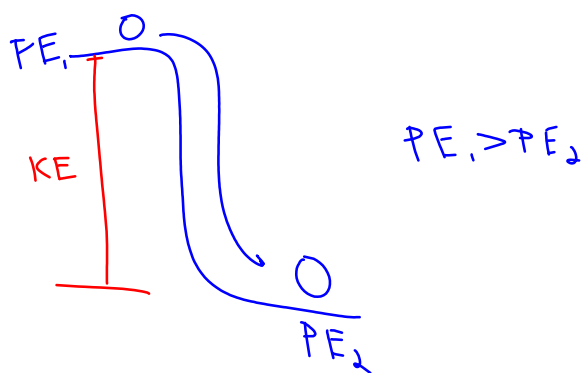
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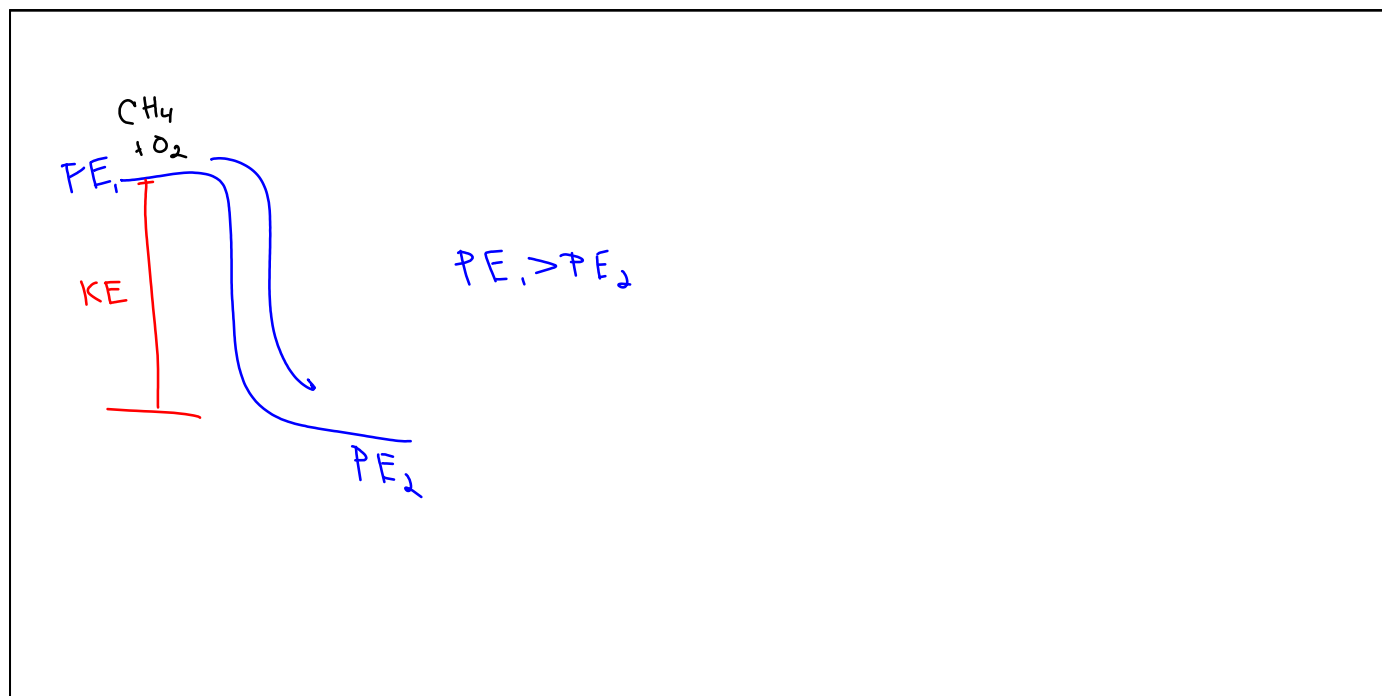


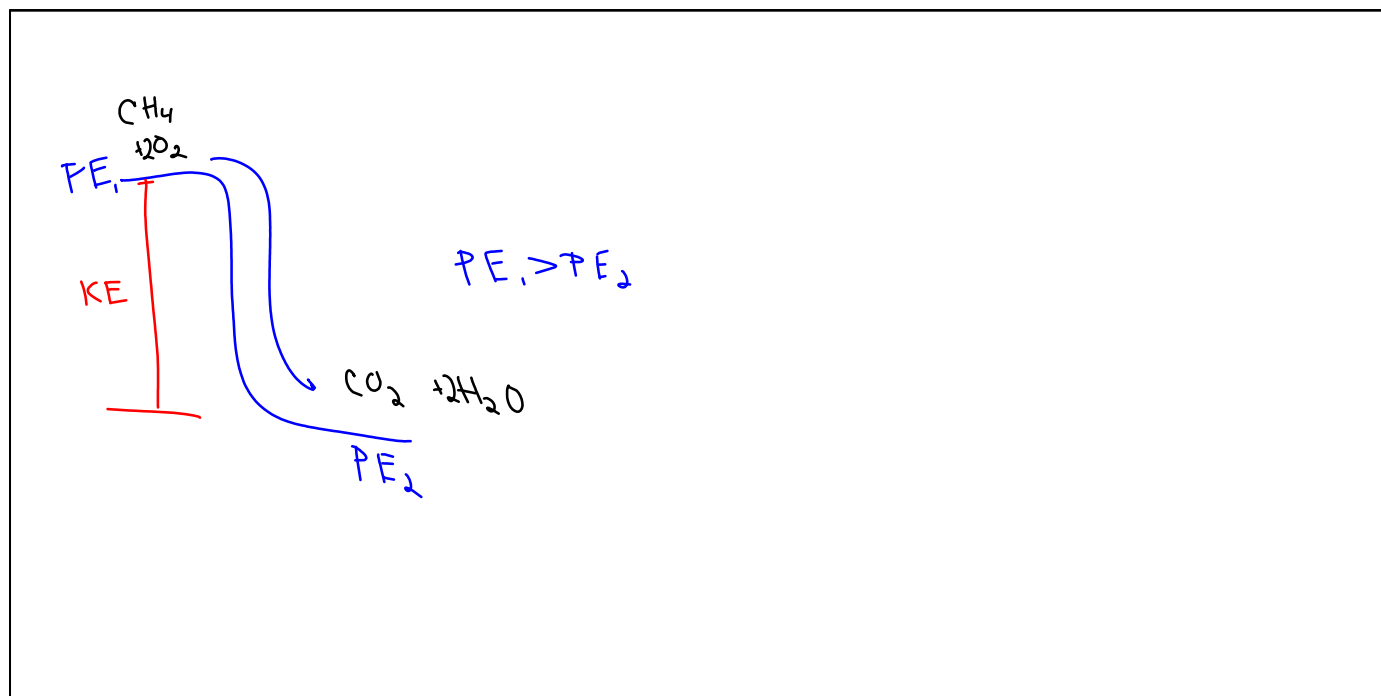


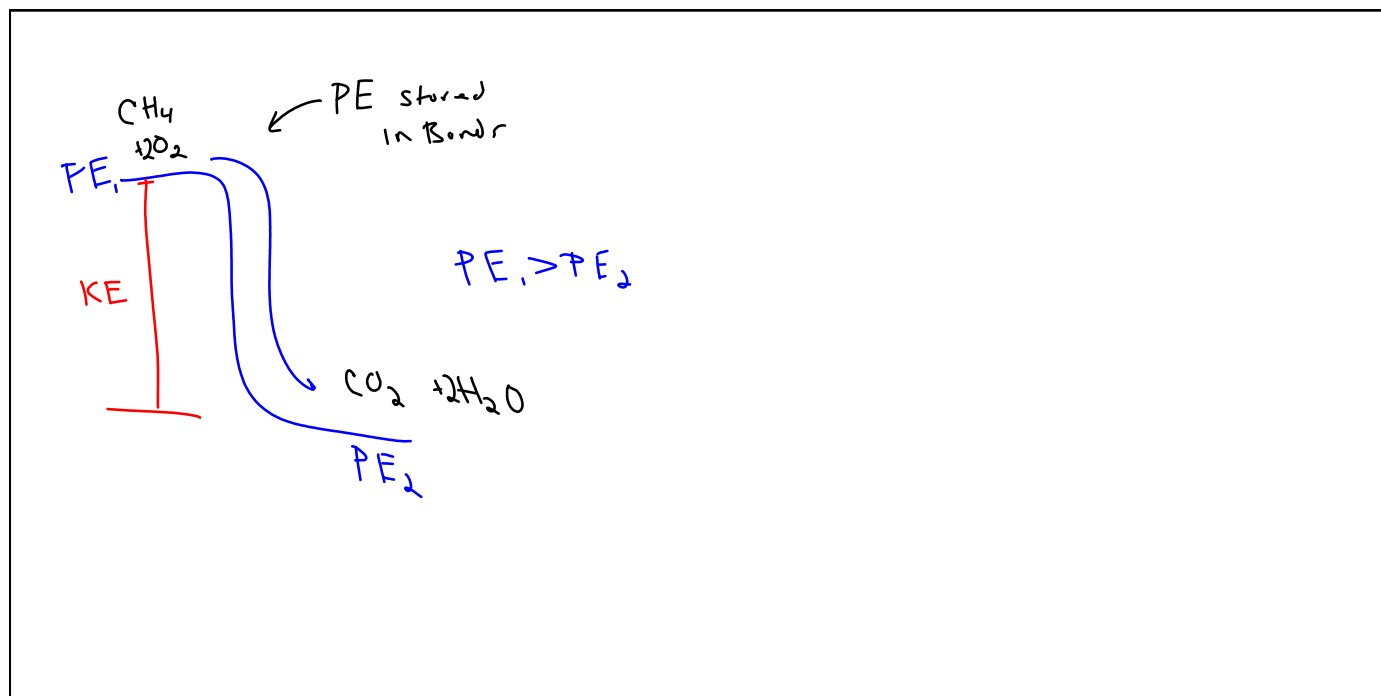


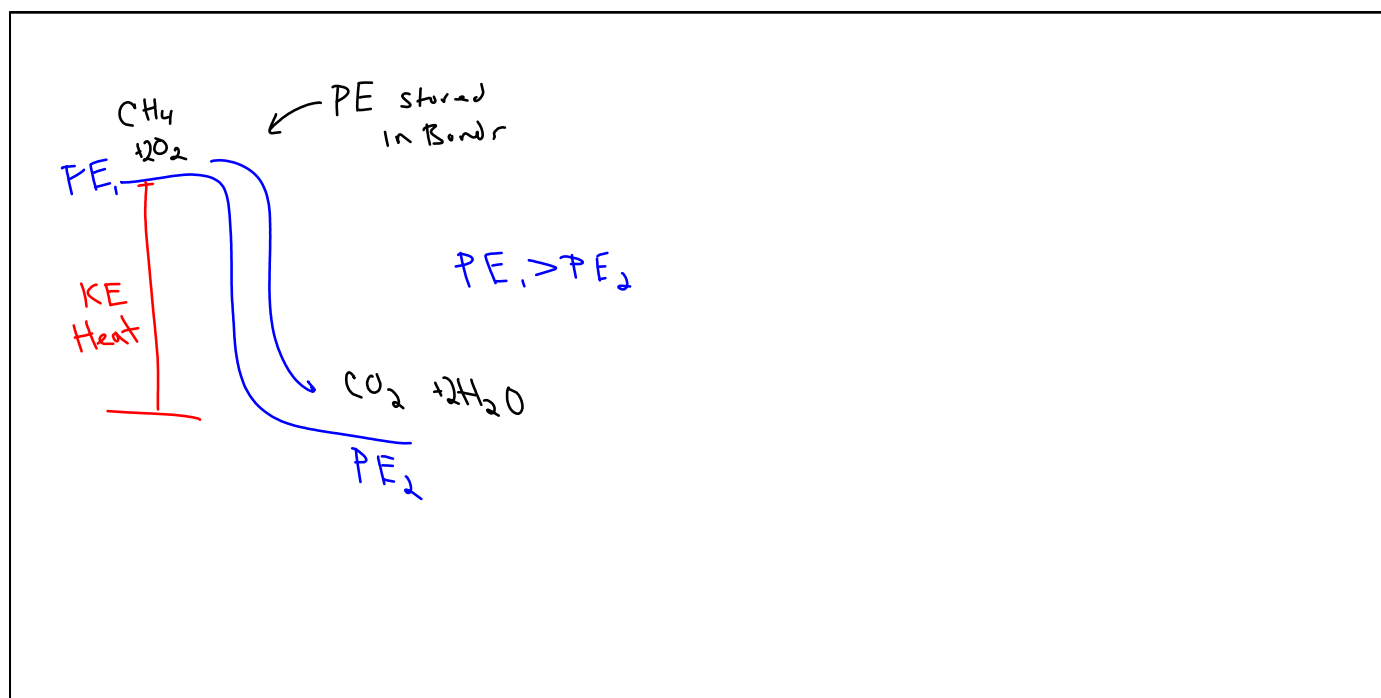


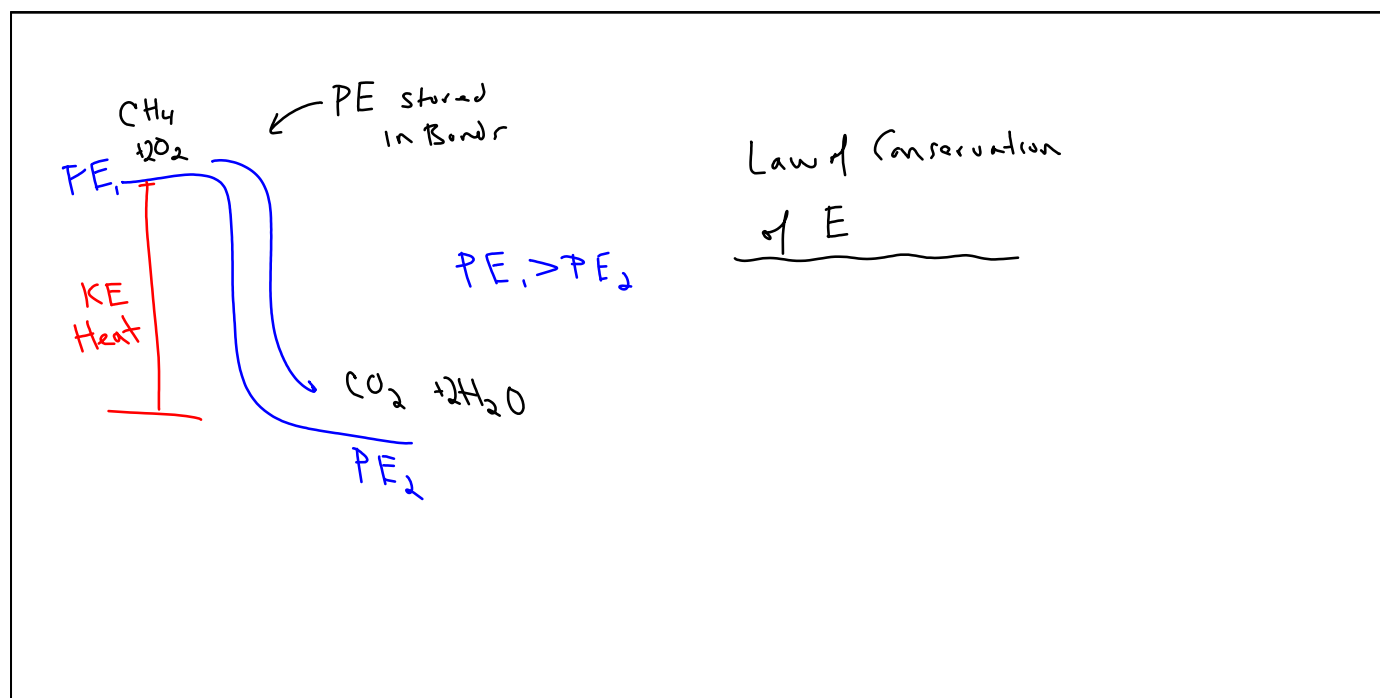




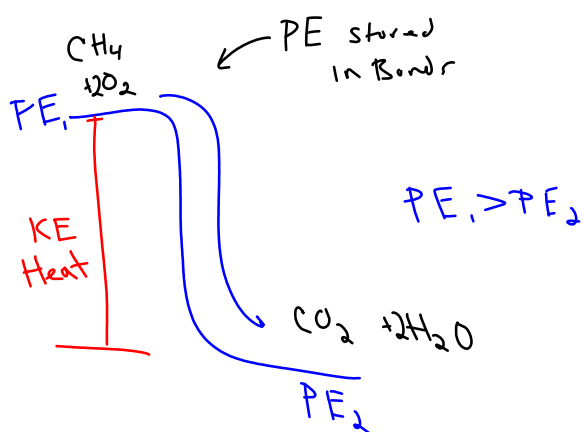






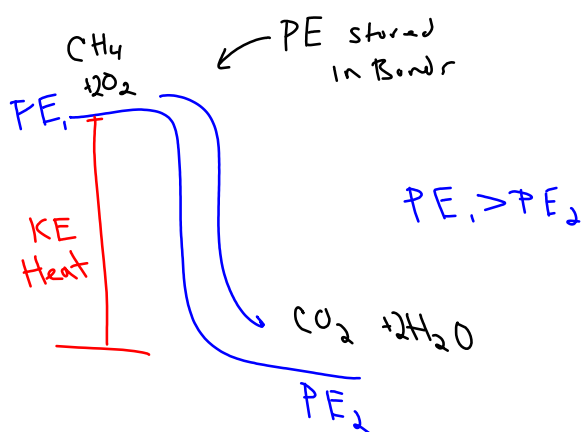






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E cannot be created  
nor destroyed, just converted  
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from one form to another  
( $PE \leftrightarrow KE$ )

States o' matter

gas

liquid

Solid - def shape + vol

States o' matter

gas

liquid - def vol, no def shape

Solid - def shape + vol

States o' matter

gas - no def shape, no vol

liquid - def vol, no def shape

Solid - def shape + vol

States o' matter

↑  
increases  
E

gas - no def shape, no vol

liquid - def vol, no def shape

Solid - def shape + vol

Physical Props/Changes

Chemical Props/Changes

## Ch 1 Notes D Block CPA.ink

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Physical Props/changes  
Obs w/o changing the  
chemical make up of the  
substance

Chemical Props/changes



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Ex:

Color  
Boiling Pt.  
FP, MP  
solubility  
Density

Shape, size  
mass  
texture, vol

Chemical Props/changes

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Evidence of a Chem Rxn  
1. gas Released (Bubbles)

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1. gas Released (Bubbles)
2. color change

Evidence of a Chem Rxn

1. gas Released (Bubbles)
2. color *change*
3. E Released

Evidence of a Chem Rxn

1. gas Released (Bubbles)
2. color *change*
3. E Released (heat, light, sound)



Evidence of a Chem Rxn

1. gas Released (Bubbles)
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4. precipitate forms

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Exothermic  
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### Evidence of a Chem Rxn

1. gas Released (Bubbles)

2. color **change**

3. E Released (Heat, light, sound) —

Exothermic  
↳ Heat Released

Endothermic  
↳ Heat absorbed

4. precipitate forms  
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Classification of Matter

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Mixture / Pure Substance

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in which they retain their individual  
props ; can be physically separated

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Suspensions

Solution



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Colloids

Soln

Suspensions - largest particles, visible, settle out

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Colloids - Medium sized particles, can't see, Never settle  
w/ naked eye

Soln - Smallest particles, invisible, never settle

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Colloids - Medium sized particles, can't see, never settle w/ naked eye → scatter light

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↳ 2 parts - solute - gets dissolved  
              Solvent - does the dissolving

Pure Substances  
↳ Sample of matter  
that →

### Pure Substances

↳ Sample of matter that → 1. has the same props no matter the source or size of sample

### Pure Substances

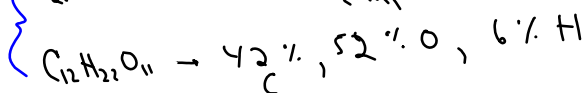
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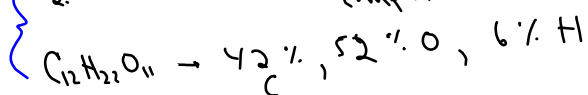
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Law of Definite Composition

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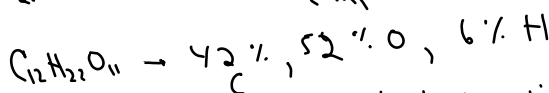
### Pure Substances

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### Law of Definite Composition

{ 2. have same chemical composition " " "



3. cannot be broken down losing its chem/phys prop

Types of PS



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elements - kind of PS composed of  
only 1 kind of atom

compound

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Smallest  
unit  
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molecules - covalent  
comp  
formula unit - ionic  
comp

Elements  
↳



Elements  
↳ organized on periodic Table

Elements  
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Columns → groups -

Elements

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Columns → groups - similar chem/phys props

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Rows → periods -

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Columns → groups - similar chem/phys props

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3 Types of Elements



3 Types of Elements

metals

non metals

metalloid

### 3 Types of Elements

metals

Conduct Heat + Elec

non metals

metalloid

### 3 Types of Elements

metals

conduct Heat + Elec

malleable

luster

non metals

metalloid

### 3 Types of Elements

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ductility - able to be drawn  
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metalloid

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tensile strength - Resistance to  
Being Pulled apart.

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*insulators*

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non metals

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*insulators*

luster

*dull*

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non metals

metalloid

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*insulators*

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*dull*

luster

*Brittle*

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metals

Conduct Heat + Elec

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non metals

oppos. to metals

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dull

Brittle

metalloids

Share properties  
of metals / nonmetals

→ Semiconductors